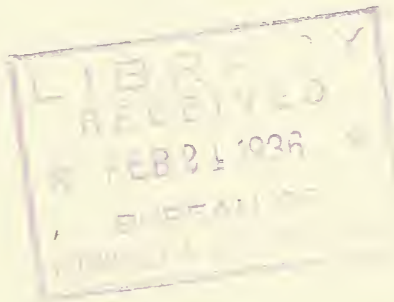


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THE INSECT PEST SURVEY
BULLETIN



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INTRODUCTION

The winter of 1934-35 was warmer than normal in nearly all sections of the country, though a narrow belt along the Atlantic coast averaged about normal and a limited area in the Northeast was colder than normal. In general, precipitation for the winter was below normal. A north-south belt extending from North Dakota and eastern Montana to the Rio Grande Valley was dry, some portions having less than half the normal rainfall. The region extending from the far Southwest to the Pacific coast, as well as the west gulf area, the Northeast, and portions of the Mississippi Valley, received more than the normal amount of rainfall.

April was cooler than normal in the far Northwest and through the central valleys into the Middle Atlantic States. The Northeastern, Southern, and Southwestern States were slightly warmer than normal. May was characterized by subnormal temperatures and excessive rainfall. This condition persisted into June over much of the country. June was abnormally dry in the Southeast and in most sections west of the Great Plains. July had extremely high temperatures, and rainfall was from ample to heavy in most sections east of the Mississippi River, but scanty and markedly deficient in many areas to the west. August was warm and rather dry.

Although temperatures for the fall season averaged remarkably near normal over practically the entire country, there were some unusual occurrences. About the middle of September frost was reported in the Northeast and in the Lake States region. During the first week in October freezing weather and killing frosts extended considerably farther south than usual by this date, and in some districts in the Southeast the temperatures were the lowest ever recorded for this time of year. In southeastern Iowa the most severe freeze for the date in 65 years occurred. The outstanding condition that affected insect abundance was the persistent cool, wet weather in the spring, which provided ideal conditions for the activity of such insects as cutworms and seed corn maggots, and, more important still, prevented one of the worst chinch bug outbreaks in 50 years.

INSECT PESTS

GRASSHOPPER ABUNDANCE

Grasshoppers hatched in about the numbers predicted by the 1934 fall egg survey, except in a few counties. Weather conditions during and following the hatching season killed many young hoppers. This was particularly true in the Upper Peninsula of Michigan, and in northern Wisconsin, western Minnesota, and eastern North Dakota, in all of which areas heavy infestations had been predicted. Heavy rains occurred while hatching was in progress and periods of heavy hatching were followed by frequent rains, high humidity, cloudiness, and low temperature, conditions unfavorable to first-instar grasshoppers. In all of these areas great numbers of young hoppers were actually seen in many localities at hatching time but had about disappeared when the fields were visited several weeks later. Vigorous and succulent growth of native vegetation and crops, combined with unusually late hatching, prevented early damage to crops and tended to obscure the dangerous numbers of grasshoppers surviving in areas where weather conditions had been favorable. Considerable damage to late-maturing crops occurred in western North Dakota, western South Dakota, south-central Montana, northern Wyoming, and western Iowa. Injury to range grass was serious throughout the Rocky Mountain region, being particularly severe in Montana, where the loss was estimated at \$500,000. The marked decrease in severity of the 1935 outbreak, as compared with that of 1934, can be judged from the following table which shows the quantity of bait used in the various States during the 2 years.

State	: Bait used in—:		State	: Bait used in—:	
	: 1934	1935 :		: 1934	1935 :
	: Tons	Tons :		: Tons	Tons :
Arizona.....	: 355	: 122 :	Minnesota.....	: 4,500	: 391
California.....	: 453	: 326 :	Montana.....	: 16,755	: 2,000
Colorado.....	: 1,636	: 733 :	Nevada.....	: 178	: 150
Idaho.....	: 339	: 13 :	North Dakota.....	: 23,667	: 980
Iowa.....	: 200	: 600 :	South Dakota.....	: 7,522	: 500
Kansas.....	: 537	: 260 :	Wisconsin.....	: 5,096	: 150
Michigan.....	: 1,195	: 900 :	Wyoming.....	: 5,250	: 785
Total.....	: - -	: - - :		: 67,683	: 7,910
	:	:		:	:

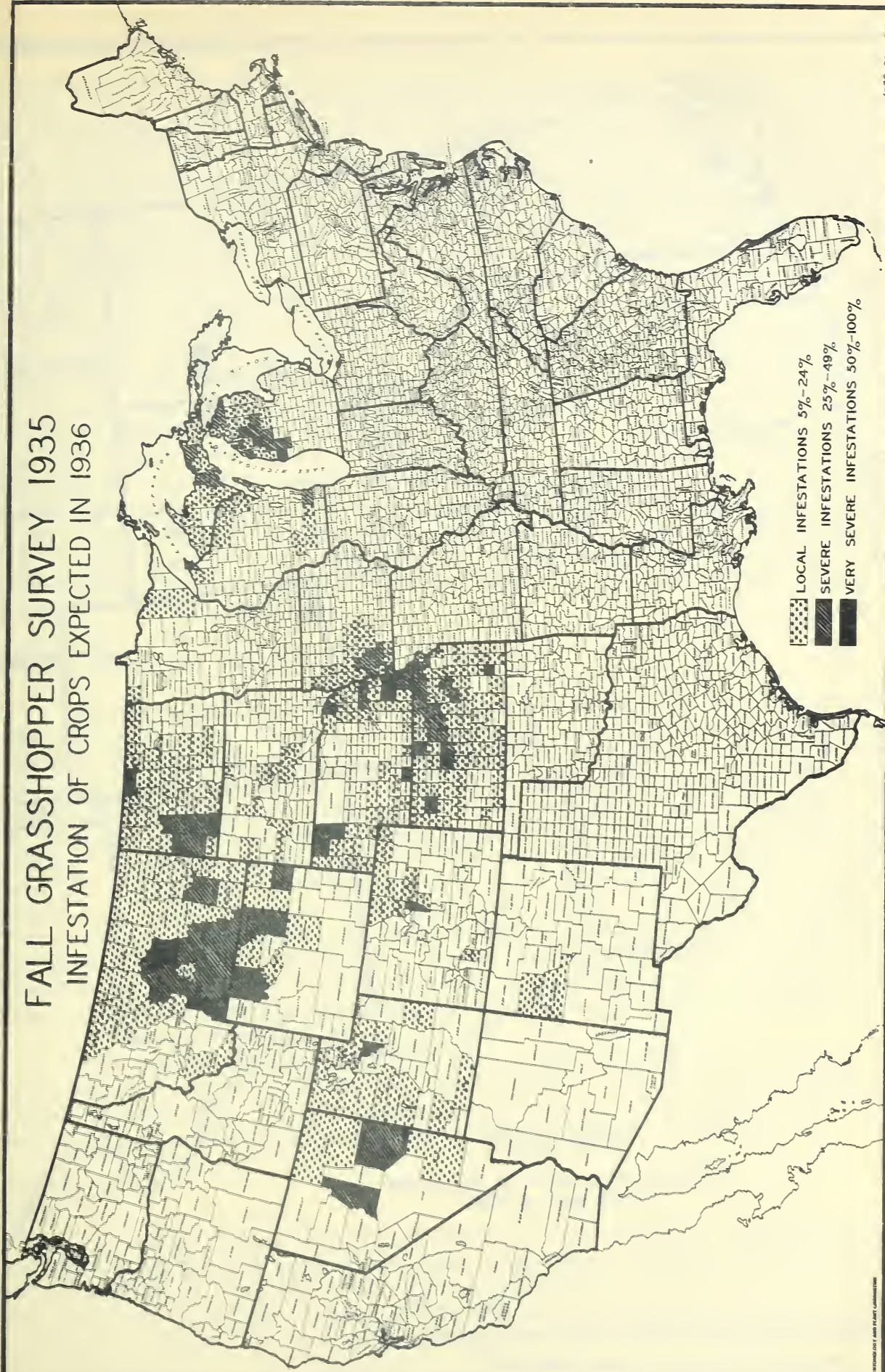
(J. R. Parker, Bureau of Entomology and Plant Quarantine, U. S. D. A.)




GRASSHOPPER SURVEY

The results of the fall grasshopper survey for 1935 (see map) are given by showing the number of counties in each State having an average infestation rated as very severe (50 to 100 percent), severe (25 to 49 percent), and local (5 to 24 percent). Very severe infestations were found in 2 counties in Michigan, 2 in Montana, and 2 in Nebraska. Severe infestations were found in 17 counties in Kansas, 12 in Michigan, 12 in Nebraska, 10 in Montana, 8 in North Dakota, 6 in Iowa, 3 in Wyoming, 2 in Wisconsin, 2 in Nevada, 1 in Colorado, and 1 in Utah. Infestations were more or less local in South Dakota, Minnesota, and New Mexico, and were local in Idaho and California.

FALL GRASSHOPPER SURVEY 1935

INFESTATION OF CROPS EXPECTED IN 1936



 LOCAL INFESTATIONS 5%-24%
 SEVERE INFESTATIONS 25%-49%
 VERY SEVERE INFESTATIONS 50%-100%

COUNTY OUTLINE MAP OF THE UNITED STATES



MORMON CRICKET

Infestation as shown by egg survey
in the fall of 1935



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Populations in all areas were greatly reduced from those of the 1934 survey, except in western Iowa, eastern Nebraska, eastern Kansas, southern Wisconsin, and the northern half of the Lower Peninsula of Michigan. In these areas light or local infestations have developed into severe or very severe ones. Heavy rains and cloudy weather during the hatching period greatly reduced the infestations of Carmula pellucida Scudd. and other species in northern Minnesota, northern Wisconsin, and the Upper Peninsula of Michigan. Melanoplus mexicanus Sauss. was the dominant species over most of the area. C. pellucida was greatly reduced in numbers by unfavorable weather. M. differentialis Thos. is building up again along the river courses of South Dakota, western Iowa, Nebraska, and Kansas. M. bivittatus Say is also increasing in these places, where succulent food was plentiful last summer, and is again becoming abundant in counties fringing the mountains in Colorado, Wyoming, and Montana. M. differentialis and M. bivittatus Say had become scarce under the severe drought of the past several years. M. femur-rubrum DeG. was numerous in alfalfa fields and grasslands in the more humid regions. M. packardii Scudd. was an important species in the Dakotas and Mountain States. Certain so-called prairie forms, as Aulocara elliotti Thomas, Ageneotettix deorum Scudd., and Drepanonoterna femoratum Scudd., were also abundant, causing much damage to grazing lands and cultivated crops adjoining in the stock-raising areas. (R. L. Shotwell, Bureau of Entomology and Plant Quarantine, U. S. D. A.)

MORMON CRICKET AND COULEE CRICKET

An unprecedented outbreak of the mormon cricket is in progress in some of the Western States. During the year eight States--Montana, Idaho, Wyoming, Nevada, Utah, Colorado, Washington, and Oregon--reported outbreaks of varying intensity and extent, and all of these States except Utah and Oregon carried on control campaigns. From extensive egg surveys made this fall, severe infestation may be anticipated next year. The accompanying map showing the general location of infestations was prepared from the egg-survey data. The following acreage was found to be infested: Colorado, 308,300; Idaho, 1,815,104; Montana, 1,249,570; Nevada, 984,999; Oregon, 23,000; Utah, 109,840; Washington, 199,780; Wyoming, 1,141,159; total, 5,831,752. The most threatening infestations are in Montana, Idaho, Nevada, and Wyoming, situated in or near the agricultural sections. The area of infestation in Washington is relatively small but is located in valuable agricultural land.

The coulee cricket developed into outbreak numbers in an area of 4,100 acres lying east of Cashmere and bordering the Wenatchee Valley in Chelan County, Wash. Considerable agricultural land is threatened. (F. T. Cowan, Bureau of Entomology and Plant Quarantine, U. S. D. A.)

CHINCH BUG

The great numbers of chinch bugs in hibernation at the beginning of the year presaged the most severe and widespread outbreak in 50 years. They were known to be abundant from central Oklahoma to eastern Ohio, with the greatest density of population in Missouri, southern Iowa, and central and northern Illinois. In the most heavily infested region thousands of bugs were often present in a single clump of bunch grass, the maximum reported being about 60,000. The only area where winter mortality of

consequence is known to have occurred was southern Iowa. In that area a thick ice sheet, persisting for several days, was reported to have caused a mortality ranging from 50 percent to 90 percent in localities where there was no protective layer of snow under the ice. A cold, wet spring largely prevented the incipient outbreak. More or less continuous rains up to the latter part of June interfered with migration from winter quarters and caused the death of great numbers of newly hatched first-brood bugs in small grains by drowning them or plastering them with mud. Except in a few localities, fungous diseases were only a minor factor in reducing the outbreak. Serious injury to small grains occurred in southeastern Iowa and north-eastern Illinois. Migrations from small grains to corn at harvest time was also quite general and severe in these areas and occurred to a more limited extent in scattered localities of central Illinois, Indiana, and Ohio. Over most of the infested area, however, these migrations were not of sufficient magnitude to warrant the construction of barriers. Many of the bugs completed their growth in the small grains or in the ample growth of foxtail in the grain stubble and migrated to corn by flight rather than on foot. Conditions during the summer were fairly favorable to development of the second brood on corn and on foxtail growing in the corn in Missouri, Iowa, Illinois, and Indiana, and on the sorghums in central and eastern Oklahoma and eastern Kansas. By fall, therefore, from moderate to abundant numbers of bugs were going into hibernation in the Central States. Surveys in November and December indicated moderately dangerous numbers of bugs hibernating in central and eastern Oklahoma, southeastern Kansas, central and northern Missouri, northern Illinois, and parts of Indiana and Ohio, with extremely large numbers again present in southeastern Iowa and west-central Illinois.

(C. M. Packard, Bureau of Entomology and Plant Quarantine, U. S. D. A.)

HESSIAN FLY

A striking instance of the rapidity with which the hessian fly can increase in two successive favorable seasons was seen in the fall of 1934 and spring of 1935. It greatly increased in abundance throughout much of the winter-wheat belt in the interval between the 1934 and 1935 harvests. Injury to this year's crop occurred in varying degree from southeastern Kansas to central Pennsylvania, with the maximum in northern Indiana, where a field survey at harvest time indicated 50 percent or more of the wheat stems infested. (For a complete report see Insect Pest Survey Bull., Vol. 15, no. 6, Sup.) Notwithstanding the fact that most of the wheat was sown after the normally safe dates in the fall of 1935, weather conditions have continued to favor fly activity to the extent that this insect has been able to reproduce abundantly over rather large areas. Such reports as are available early in December indicate that the fly has been able to maintain itself in from moderate to abundant numbers from north-central Oklahoma through southeastern Kansas, Missouri, southern Iowa, southern Illinois, and much of Indiana, grading into very light infestations in Ohio with somewhat larger numbers indicated in western and central Pennsylvania and New York. The particular conditions allowing fly development in the fall were sufficient rains late in August and early in September to bring up the volunteer wheat and cause an emergence of flies from the stubble to infest it. Additional rains the last of September and first of October induced pupation among the new brood of flies maturing in volunteer wheat and further pupation in stubble, which culminated in an unusual emergence of adults the middle of October. Much wheat sown after the normally safe dates received infestation from these adults, the progeny of which appeared to be maturing

successfully in the periods of mild weather late in the fall and in the early winter. Counts made during December in 24 fields in western Indiana showed an average of 40 percent of the plants infested. The stand in some fields may be materially reduced by this unusual infestation in the comparatively small, late-sown wheat, and there is likelihood of serious injury to the current crop where weather conditions next spring favor the development of the spring brood. (C. M. Packard, Bureau of Entomology and Plant Quarantine, U. S. D. A.)

EUROPEAN CORN BORER

A complete report on this insect was prepared by A. M. Vance, of the Bureau of Entomology and Plant Quarantine, and was published as a supplement to no. 9, vol. 15, Insect Pest Survey Bulletin.

ALFALFA WEEVIL

At the beginning of the season in 1935 adult alfalfa weevils were present in destructive abundance at Tremonton, Salina, and Salt Lake, Utah; Medford, Oreg.; Reno, Nev.; Grand Junction, Colo.; and Harrison, Nebr. In none of these places was the population of weevils excessive, and the weather, being nearly normal after a series of widely erratic seasons, gave rise for the most part to a normal population of larvae on the first crop. The resulting damage was general but not excessive. The temperatures at Salina, and Grand Junction were somewhat lower than indicated above, and this condition was reflected in delayed oviposition, which at Salina reduced the expected damage to the first crop. The same condition at Grand Junction failed to benefit the first crop because spring frosts delayed the cutting until the larvae had reached and passed their stage of maximum destructiveness. A single field at Harrison, Nebr., was seriously damaged, chiefly because, through lack of experience with the weevil, the crop was allowed to stand until the maximum injury developed. A survey of the weevil-infested territory in autumn showed a prevalence of from moderate to low populations in most localities. The weevil was taken in Clark County, Nev., in April, which established a new infestation record. In the course of scouting operations in June new infestations were found in the following places: Scotts Bluff County, Nebr., Montezuma County, Colo., Kane County, Utah, and Coconino County, Ariz. (Geo. I. Reeves, Bureau of Entomology and Plant Quarantine, U. S. D. A.)

CUTWORMS

As a result of cool, rainy weather, cutworm injury occurred abundantly over the United States east of the 100th meridian and in isolated localities in California, Arizona, Utah, and southwestern Idaho. The army cutworm was the first species to attract attention. It was observed in Hayes County, Nebr., and Riley County, Kans., in the latter half of February. As the season advanced it became destructively abundant over most of Kansas, southern Nebraska, and in scattering localities in Oklahoma. The variegated cutworm was found in association with the army cutworm and extended its depredations over much more territory, including Arkansas, Missouri, Iowa, Minnesota, and Michigan. It was also reported from the Sacramento Valley and southern California. Various species of climbing

cutworms were reported as injuring fruit buds in isolated localities in many parts of the country.

ARMY WORM

The first report of damage by the armyworm was received from southwestern Missouri in March, and by the last of April swarms of moths were observed over most of the State. In May heavy flights occurred over Illinois and Indiana. In June, outbreaks of larvae were occurring over the States mentioned, extending into western and central Kentucky, through Iowa into southern Minnesota, into southeastern Nebraska, through eastern Kansas, and into northeastern Oklahoma, where severe damage was caused. Reports of isolated damage were received from Baltimore County, Md., and Norfolk and Wythe Counties, Va. As is usual in an outbreak of this insect, parasites and predators became abundant and gained control by the end of the season.

VETCH BRUCHID

The vetch bruchid, which was first recorded in the United States in 1931, has spread considerably in North Carolina. A survey in the west-central part of the State showed 15 counties infested. Smooth and hairy vetch are attacked and in Rowan County, the original infested area in that State, the infestation averaged 50 percent of the pods. New records of infestation include Washington County, Md., a locality in Franklin County, Pa., a county already infested, and Chesterfield and Lancaster Counties, S. C.

FRUIT APHIDS

The three most important species of apple aphids hatched in about normal abundance during the latter half of March and the first week in April in the northeastern fourth of the United States. Development was retarded by unfavorable weather conditions and only moderately heavy infestations were reported. An unusually heavy infestation of the rosy apple aphid was reported from northwestern Arkansas the last of May. On the whole, aphid injury was less than usual and no extensive commercial damage was reported. A report from Virginia, dated October 28, stated that fall migrants and oviparous females of the rosy apple aphid were unusually abundant throughout the apple-growing district.

CODLING MOTH

Injury by the codling moth was lighter over the country as a whole than it has been since 1929. Reports from California indicated that apples, pears, and peaches in the Sacramento Valley suffered greater injury than in 1934. The cool, rainy weather during May, which delayed emergence, and the low evening temperatures, which prevented maximum egg-laying, were probably the controlling influences in the low infestation. Many of the first-brood larvae lacked sufficient vitality to enter the fruit. In July the second-brood larvae were reported from scattered localities as increasing in abundance, but they were effectively controlled. Unusually warm weather during the first half of September stimulated activity in some of the East Central States and in the Yakima and Wenatchee Valleys in Washington. Reports from over the country generally indicate that there were comparatively few larvae to enter hibernation this fall.

ORIENTAL FRUIT MOTH

Twig and fruit injury by the oriental fruit moth was reported as light over most of the infested territory. A report from Illinois on July 24 stated that large numbers of larvae were entering peaches. In Ohio, although early peaches escaped injury and later varieties suffered little injury, quinces were severely damaged. The insect was discovered in the northwestern corner of Missouri in 1935, the first record for that part of the State. It had been present across the State line in Kansas since 1932. Our first report of its presence in New Hampshire was received in September.

EASTERN TENT CATERPILLAR

A very severe outbreak of the eastern tent caterpillar occurred this year. The infestation was centered in the New England States, southeastern New York, and New Jersey, and extended into northwestern New York, Pennsylvania, northeastern Ohio, through West Virginia, eastern Kentucky, and into Tennessee and Georgia. As early as March 20 tents were being observed in Tennessee, and on March 25 the heaviest infestation on record was reported from the Fort Valley district in Georgia. The great abundance of overwintered egg masses started to hatch the last week of March in the latitude of Washington, D. C., and by the last week of April, they had been progressively reported as hatching all the way northward to Vermont and New Hampshire. Within the next 2 months complete defoliation was reported from much of the infested area and the insect had taken a place as one of the outstanding tree insects of the season.

FRUIT FLIES

Glass fly traps, baited with a solution of brown sugar and water, have proved their value in locating infestations of Anastrepha ludens Loew in the Rio Grande Valley. Through the use of these traps, adults were taken on 166 premises and brush locations in 1934-35. The total number of flies trapped in the valley area was approximately 20 percent greater than the number trapped in 1933-34, but the number of premises known to be infested with adults decreased 5.7 percent. Larval infestations were located in grapefruit on 27 properties in the lower part of the valley. As in the case of an adult infestation, the trees on all properties where larvae were found were promptly sprayed and the fruit was buried, processed, or limited as to use. On account of finding infestations near Falfurrias in March, 1935, the regulated area was enlarged to include Brooks County, Tex. Besides A. ludens, 8 other species of fruit flies have been taken in traps in the Rio Grande Valley, but there has been no record of their attacking any fruit of economic importance. The local host of only one of these flies is known. A. pallens Coq. has been found to feed only in the seeds of Bumelia angustifolia. The Papaya fruit fly (Toxotrypana curvicauda Gerst.) has been captured, but this species is of no economic importance under valley conditions. The other 6 species taken in the traps have not been found infesting fruit and comparatively little is known of their habits. Included among these finds were A. serpentina Wied., A. fraterculus Auct., and A. striata Schin. (P. S. Hoidale, Bureau of Entomology and Plant Quarantine, U. S. D. A.)

PLUM CURCULIO

Reports on the plum curculio in the Southeastern States early in the season indicated that serious injury might be anticipated. In the Georgia peach belt a greater number of beetles went into hibernation in 1934 than usual and in the spring of 1935 they began leaving earlier than usual. This resulted in a heavy larval infestation, and there was every indication of a heavy second brood and serious injury to the ripening peaches, but dry, hot weather, just at the time the beetles should have begun to oviposit, brought about an important change in development by preventing oviposition. Very few eggs were laid, and the peach crop was harvested without much injury. It is a significant feature that the beetles went into hibernation this fall without laying eggs and will have a superabundance for deposition next spring. Damage by the insect was negligible throughout the northern part of its range.

CHERRY FRUIT WORM

The cherry fruit worm (Grapholitha packardii Zell.) was found to be quite common in sour cherries near Kent, Wash., in July. It was later determined that the insect occurs throughout the district between Seattle and Tacoma. It has caused considerable damage to cherries in British Columbia, especially on Vancouver Island.

CHERRY SCALE

A well-established infestation of the cherry scale was found on pears near Sacramento, Calif., in July 1934. This scale is common on deciduous fruit and ornamental trees east of the Rocky Mountains, but this is the first record west of the mountains.

SEED CORN MAGGOT

The cool, rainy weather during the early part of the growing season delayed germination of seeds and was very conducive to the activity of the seed corn maggot. Reports of serious injury to the usual hosts were received from western New York through Michigan and Indiana to North and South Dakota and Nebraska, as well as from Colorado, Utah, Idaho, and southern California.

SWEETPOTATO WEEVIL

Two new infestations of the sweetpotato weevil were discovered during the year, one in Pike County, Miss., and one in Decatur County, Ga. The insect was also reported as occurring in great abundance in Gadsden County, Fla. Careful scouting in Greene County, Miss., failed to reveal the pest where it was found on 12 farms in 1934.

PEPPER WEEVIL

Adults of the pepper weevil remained active all winter in Orange County, Calif., and an early infestation was built up in some fields; however, development was retarded and no appreciable damage occurred until August, when very warm weather provided ideal conditions for reproduction. At that time

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from 25 to 50 percent of the crop was threatened. The most significant feature of the season was the discovery of this weevil in Manatee County, Fla., in May. Scouting revealed the presence of the insect in nearly every pepper field in the county, but none in the adjoining counties. An eradication campaign was inaugurated and all of the pepper plants and wild host plants in the infested area were destroyed. In the collections of the National Museum there are specimens labeled "Mansura, La., June 29, 1904."

MEXICAN BEAN BEETLE

Reports on the survival of the Mexican bean beetle in cages at Columbus, Ohio, at Newark, Del., and in the Estancia Valley, N. Mex., showed that the winter mortality was higher than usual. The beetle overcame this early handicap, and by the middle of July it had built up heavy populations over most of its range east of the Mississippi River. By the end of the season it had caused the most serious injury in several years. It extended its range of destructive abundance and several points of new infestation were discovered. The accompanying map shows the spread since 1932.

BEET LEAFHOPPER

The curly-top disease caused by the beet leafhopper was not so serious as in 1934. Cool, wet weather in the spring retarded development of the leafhopper in the San Joaquin Valley and little damage was done. The insect became normally abundant in Idaho and Utah and injured beets, tomatoes, and beans. Weather favorable to the growth of sugar beets prevailed in July and some of the curly-top injury to the crop was overcome.

INTRODUCED WEEVIL

A recently introduced weevil, Calomycterus setarius Roelofs, attracted considerable attention during the summer in isolated heavy infestations in Cumberland County, Pa., Baltimore County, Md., and Litchfield and Fairfield Counties, Conn. A great variety of host plants were attacked. The weevil was first discovered in this country in 1929 in Westchester County, N. Y., and in 1932 it was found to be established in Litchfield County, Conn.

BOLL WEEVIL

Damage by the boll weevil was comparatively light during 1935. Throughout the States where the weevil occurs the infestations varied greatly, even in limited areas. These variations in abundance were due to such factors as local differences in rainfall, proximity to hibernation quarters, and whether or not the cotton leaf worm defoliated the cotton in the fall of 1934. In some counties during midsummer the infestations ranged from less than 5 percent punctured squares in some fields to more than 90 percent in others. Although in all sections the weevils were largely held in check by natural conditions, this was especially true in the southern and northern thirds of the Cotton Belt. In the region within 200 miles of the Gulf coast in the States east of Texas the population was never heavy, except in limited areas. This favorable condition that prevailed in the Gulf coast region was due partly to a light spring population, because few weevils entered hibernation

in 1934. The growers in most places also received the benefit of sufficient hot, dry weather during the summer to hold down the weevil population and allow the production of satisfactory crops of cotton. In the northern third of the Cotton Belt the weevils were greatly reduced by the low temperatures of the winter of 1934-35 and were again checked by the hot, dry weather of the summer. During the spring and early summer conditions were favorable for the weevils over a large portion of the central third of the Cotton Belt, from the Atlantic coast westward into Texas. Many growers in this area, especially in the Delta sections of Arkansas, Louisiana, and Mississippi, made preparations for a hard fight against the weevil and some of them began dusting in June, but hot, dry weather in July and August satisfactorily checked the weevils in many fields. It was, however, in this central belt that most of the poisoning for boll weevil control was done and most of the serious damage occurred. Late in the fall, as the weevils entered hibernation, they were reported to be more abundant than usual in the vicinity of Florence, S. C., and College Station and Port Lavaca, Tex., while the opposite condition was reported from Mississippi, Louisiana, and Oklahoma. The defoliation of the cotton plants by the leaf worms over such a wide range has undoubtedly greatly reduced the number of weevils entering hibernation this fall. (R. W. Harned, Bureau of Entomology and Plant Quarantine, U. S. D. A.)

THURBERIA WEEVIL

The Thurberia weevil was first discovered in the United States in the latter part of 1912 in mountains near Tucson, Pima County, Ariz. This insect was found on the Thurberia plant, which is related to cotton. At that time there were no commercial plantings of cotton in that section, but by 1918 such plantings were begun, and later they were extended along the Santa Cruz Valley, in Santa Cruz and Pima Counties, and in certain sections of Cochise County. The weevil was first found in cultivated cotton in 1920, and has been found in nearly every crop since then. A few weevils were also found in the southern part of Pinal County in 1931, but none has been found there since. For the past several years practically all of the cotton acreage involved has been in Pima County. This year, by means of gin-trash inspection, 15 weevils have been found. The eradication of Thurberia plants, many of which are infested, is now being undertaken in the mountain ranges near fields of cultivated cotton. (R. E. McDonald, Bureau of Entomology and Plant Quarantine, U. S. D. A.)

PINK BOLLWORM

Gin-trash inspection of the 1935 cotton crop is just about completed, and no specimens have been found in any new areas this year. No specimens were found in the regulated areas in Florida and Georgia, nor in the Plains counties of Texas, known as the "Western Extension." A very light infestation continues to be present in El Paso, Pecos, and Ward Counties, Tex., in Dona Ana, Chaves, and Eddy Counties, N. Mex., and in Graham County, Ariz. A small amount of cotton is grown in Greenlee County, Ariz., but ginned in Graham County, and it is possible that some of the specimens found in Graham County originated in Greenlee County. In the above areas under regulation the infestation is very light, and no commercial damage is being done. In Brewster, Presidio, and part of Hudspeth County, Tex., a considerable number of worms is present but, because of special control measures which have been

carried on for a number of years, there was practically no commercial damage in 1934 and 1935. The eradication of wild cotton in southern Florida is just now (December) getting under way for this season. Most of the wild cotton known to be infested was destroyed during the two previous seasons. (R. E. McDonald, Bureau of Entomology and Plant Quarantine, U. S. D. A.)

BOLL WORM OR CORN EAR WORM

The boll worm was observed breeding throughout the entire winter of 1934-35 on corn and other host plants in the vicinity of Brownsville, Tex., in the lower Rio Grande Valley. As a cotton pest this insect was more serious in 1935 than during any year since 1929. This was especially true in northern and eastern Texas. The emergence in hibernation cages at College Station, Tex., in the spring of 1935 was 5.53 percent. The first egg was found there on March 22 and one first-instar larva was recorded on March 29, both instances being on alfalfa. The first moth was found in corn on April 5 and at that time eggs were present at the rate of 11 per 100 plants. There was a slight increase in eggs the following week, but during the season the eggs were not as abundant on corn plants or silks as they usually are; however, enough worms developed to cause at least 90 percent of the ears to be injured by the last of June. On cotton the average number of eggs ranged from less than 5 during the early part of July to 105 per 100 cotton terminals on August 10, the peak of the season. Three broods occurred on cotton, but only those in July and August caused serious damage. The September brood was not important. The past season was the first time that general poisoning was resorted to for boll worm control. Comparatively good yields were made in fields where poisoning was done, but little fruit was set during the time the first and second broods on cotton were active in July and August. Fortunately, late frosts permitted the top crop of cotton to develop to maturity in that section of Texas. At Florence, S. C., the insect caused little damage and was not as abundant in cotton fields as in 1934, when some damage was noted. In the hill section of Mississippi there was an unusually large number of eggs and larvae on cotton from June 20 to July 5, but for some reason practically no damage was caused in 1935. In the Delta sections of Mississippi and Louisiana the boll worm was present in about the usual small numbers on cotton and no particular damage was noticed. At Presidio in the Big Bend area of Texas boll worms were much more numerous than for several years. They were most abundant during June and July and, although they caused some damage to cotton, much greater damage was done to corn. In Oklahoma boll worm injury was light, except in some rank cotton in the eastern part of the State. (R. W. Harned, Bureau of Entomology and Plant Quarantine, U. S. D. A.)

Note. -- As a pest of corn this insect was remarkably scarce generally over the eastern half of the United States. In Idaho and Utah the insect was reported as causing more damage than usual. A serious outbreak occurred on tomato in the Yakima Valley of Washington. In some plantings from 75 to 80 percent of the fruit was infested. In the San Francisco Bay district and in southern California damage ranged from 5 to 25 percent.

COTTON LEAF WORM

The cotton leaf worm appeared in all of the cotton-growing States earlier than usual. It was particularly abundant in parts of Texas, Oklahoma, Arkansas, Louisiana, and Mississippi. Hundreds of thousands of acres of cotton were treated in those States during August and September. At Florence, S. C., although leaf worms appeared 2 weeks earlier than in 1934, they caused less damage and did not completely defoliate a single field in that vicinity. In the hill section of Mississippi, in the southern part of the State, the insect appeared only 10 days earlier, but completely defoliated the cotton plants 30 days earlier than in 1934. During the last 10 days of August all fields in the southern part of the State were stripped, whereas in 1934 it was late in September before this happened. As the crop was extremely early and was mature before the leaf worms appeared, no damage was done to the crop. In the northern third of the State the insect was abundant after August 15 and caused damage where it was not controlled. Owing to the lateness of the crop in this section, it was necessary for many farmers to poison two generations of the worms. In Washington County in the Delta section of Mississippi the first leaf worms were noted on July 11 and by August 3 the farmers were complaining about them. By August 24 the worms were in all fields; by September 7 some fields had been stripped, and by the end of September stripping was general. In Madison Parish, La., leaf worms may have caused some slight injury in a few isolated fields where stripping occurred in August, but in general this came after the cotton was mature and no injury was caused. In the vicinity of College Station, Tex., the first moth was found in cotton the last week of June and the first worms were noted during the first week of July. By July 15 dusting was fairly general and was continued when needed until October, therefore a few cotton fields in that section of Texas were defoliated. The leaf worm appeared in May and June in southern and central Texas and many fields were poisoned in June. In some sections considerable damage was done, owing to the shortage of insecticides. In the Big Bend area of southwestern Texas the infestation was much heavier than during the past few years. Many cotton fields in Virginia were defoliated in September. The moths made their appearance in the Northern States earlier than usual, being reported from Maine and Michigan in August, and large numbers of them appeared in Washington, D. C., in September. They were reported as fairly abundant in October in Illinois, Iowa, and Michigan. (R. W. Harned, Bureau of Entomology and Plant Quarantine, U. S. D. A.)

BEET ARMYWORM

The beet armyworm was unusually abundant on cotton during the spring of 1935 and caused considerable damage to the young plants in all the irrigated sections of the West and in Mexico. Several hundred acres had to be replanted and poor stands were caused on numbers of other fields in the Big Bend area of Texas. Alfalfa was also badly defoliated. This was the first time that this armyworm has occurred in sufficient numbers in this area to cause economic damage to cotton. It was necessary to replant 200 acres of cotton, and other fields were damaged in the Tucson district of Arizona. Serious injury also occurred in the Salt River Valley, especially the western part, and considerable acreage was dusted and irrigated for protection.

Reports of similar damage were received from the El Paso Valley of Texas and the Mesilla Valley of New Mexico. C. S. Rude reported the insect was present throughout the cotton fields of the Laguna district of Mexico in April and early in May, and in many cases the cotton was almost completely defoliated. Although in most cases the cotton recovered, it was considerably later because of the attack. (U. C. Loftin, Bureau of Entomology and Plant Quarantine, U. S. D. A.)

APHIDS ON COTTON

The cotton aphid (Aphis gossypii Glov.) occurred as usual wherever cotton was grown. Usually it is the most important aphid attacking cotton, but a survey made during 1935 indicated that A. medicaginis Koch was more serious as a cotton pest and more generally distributed in the Atlantic Coast States. Its attacks are usually confined to the terminal buds and it is seldom seen on the large leaves, except in cases of extremely heavy infestations. A. gossypii was frequently reported as serious in all parts of the Cotton Belt following the use of arsenical poisons but many heavy infestations were observed in fields where no arsenicals had been used. These leaf aphids caused about the same amount of damage in South Carolina in 1935 as during the previous year. In Mississippi no serious aphid infestation was observed in 1935, except on cotton that had been dusted. Heavy infestations developed on many plots where only three applications of calcium arsenate were made during the season. In Louisiana cotton aphids were present in unusually large numbers and caused some injury during the past season, particularly on poisoned cotton. In the vicinity of College Station, Tex., aphids were first observed on cotton in April and by May 18 were fairly abundant in many fields. The infestations began to decrease during the first week of June and remained low until the early part of August, following heavy dusting. The infestations were heavy during the remainder of the season and possibly caused some injury to small bolls, as some failed to develop to normal size and opened prematurely. At Port Lavaca, Tex., the aphids were comparatively scarce on cotton during May and June during the period when infestation usually is most serious. The damage caused by root aphids (Anuraphis maidi-radiciis Forbes, Trifidaphis phaseoli Pass., and Rhopalosiphum sp.) was far greater in 1935 than in 1934. (R. W. Harned, Bureau of Entomology and Plant Quarantine, U. S. D. A.)

COTTON FLEA HOPPER

Emergence of the cotton flea hopper from overwintered eggs was about normal in southern Texas during the spring of 1935. Although the general infestation in cotton fields was a little later than usual, weather conditions were favorable for its rapid multiplication during the latter part of May and during June. The hopper took a large toll of the early crop of cotton throughout southern Texas and also throughout most of the black-land belt of central Texas. The damage caused by this insect to the early crop and by the leaf worm and boll weevil to the late crop caused a considerable reduction in the final yield in the coastal and black-land sections of Texas. Croton was abundant last fall and, as this is the principal plant in which the cotton flea hopper overwinters in the egg stage, conditions are favorable for a large number of these insects to hibernate successfully in this stage. At College Station, Tex., the total emergence in cages was higher in the spring of 1935 than in any recent year except 1932. Nymphs and adults were observed late in

March and were general in cotton fields by the end of April. By June hoppers could be found in some fields at the rate of 28 per 100 plants and the average remained about that number during June, though it was heavier in some fields. During the latter part of June dusting was done on four plantations in the vicinity of College Station. The hoppers were decreasing rapidly by July 13. In Arkansas and Oklahoma there were some reports of cotton-hopper injury. In Louisiana and Mississippi these insects were also present in the cotton fields, but other mirids, Lygus pratensis L., and Adelphocoris rapidus Say, caused more damage to cotton. The cotton flea hopper occurs in practically all areas where cotton is grown. This year for the first time it was recorded definitely as a cotton pest of importance in Arizona, although another mirid, Lygus elisus hesperius Knight, was more abundant and caused more damage in that State. (R. W. Harned, Bureau of Entomology and Plant Quarantine, U. S. D. A.)

STINKBUGS

Four species belonging to the family Pentatomidae, namely, Euschistus impictiventris Stahl, Chlorochroa sayi Stahl, Thyanta custator Fab., and C. ligata Say, did considerable damage to cotton during the summer and fall of 1935 in irrigated sections of the Southwest. These insects, by virtue of their boll-puncturing habits, are responsible for lint stains that lower the grade of cotton and they may also cause shedding of smaller bolls and the production of inferior lint on pierced seeds within the boll. In Arizona E. impictiventris was decidedly the most important species with respect to abundance and amount of injury, with C. sayi and T. custator following closely in the order named. C. ligata was numerous in only a few fields in Graham County. As a rule, however, it was of no importance. As shown by the internal cell proliferations formed about puncture wounds, the percentage of injured bolls in 1935 in Arizona was 27.2 percent, as compared with 23.4 percent injured bolls noted in 1934. In the vicinity of Presidio, Tex., pentatomid injury to cotton was also severe, C. ligata, C. sayi, and T. custator being the insects concerned. By the end of August, 33.3 percent of the bolls 35 days old had been damaged, 23.7 percent of them severely. Unverified reports from the San Joaquin Valley of California indicate that pentatomids were severely injuring cotton bolls in that area during 1935. (L. D. Christenson, Bureau of Entomology and Plant Quarantine, U. S. D. A.)

PERIODICAL CICADA

Brood IX appeared this year in considerable numbers in a small area in southeastern West Virginia, western Virginia, and western North Carolina, which is the center of the brood. Positive observations were made in the following localities (names of counties underscored):

Indiana:	<u>Lake</u> , Crown Point.
North Carolina:	<u>Alleghany</u> , Laurel Springs, Piney Creek, Roaring Gap, Sparta, Twin Oaks, Whitehead; <u>Ashe</u> ; <u>Forsyth</u> , Vienna; <u>Rockingham</u> ; <u>Rutherford</u> , Lake Lure; <u>Surry</u> , Mount Airy; <u>Watauga</u> , Deep Gap; <u>Wilkes</u> , northeastern part.

Virginia: Alleghany, Covington; Augusta, Staunton; Bland, Bastian;
Charlotte, Charlotte Court House; Franklin, Callaway;
Henry; Montgomery, Elliston; Pittsylvania, Gretna,
Rockymount; Pulaski; Roanoke, Roanoke; Wythe.
West Virginia: Berkeley; Fayette, Gauley Bridge; Greenbrier, Maxwelton,
White Sulphur Springs; Mercer, Bluefield, Princeton;
Wood, Parkersburg.

Brood XXI was represented this year by only one record. The insect was heard at Pelahatchie, Rankin County, Miss. (Broods IX and XXI of the periodical cicada scheduled to appear this year were treated in a supplement to Insect Pest Survey Bulletin, vol. 15, no. 2, which gives maps and locality records for all previous occurrences.)

ASIATIC BEETLES

There has been little increase in 1935 in the area known to be infested by Anomala orientalis Waterh. One beetle was found at a new location in New Jersey at Springfield, in Union County. There have been a few reports of minor turf injury from feeding by larvae. In 1935 the Asiatic garden beetle (Autoserica castanea Arrow) continued to spread. On Long Island all of Nassau County has now been covered and the insect has penetrated into the western part of Suffolk County. Prior to 1935, the southern part of Nassau County had been only lightly infested, but this year the insect has increased in numbers, resulting in more feeding on ornamentals and in vegetable gardens along the south shore of Long Island. The infestation in northern New Jersey now covers all of Essex, Hudson, and Union Counties and embraces parts of Bergen, Passaic, Middlesex, and Monmouth Counties. The old infestation in Pennsylvania located in the Philadelphia suburban area has also shown a gradual increase in area. In 1935 beetles were fully as destructive to ornamental plants as in previous years, but fewer cases of injury to vegetable plants than in 1933 and 1934 were reported. The insect was definitely more of a nuisance in 1935 than in any previous year in its habit of flying about and alighting on persons in brightly lighted places. (C. H. Hadley, Bureau of Entomology and Plant Quarantine, U. S. D. A.)

OBLONG LEAF WEEVIL

The oblong leaf weevil (Phyllobius oblongus L.) was very abundant and caused noticeable injury to elm and maple near Painesville, Ohio, where it was first discovered in 1934. This weevil was first recorded in this country in 1923 from near Rochester, N. Y., where it was attacking elms. The Survey has received no further reports on this infestation, although a report of injury to pear foliage was received from Penfield, N. Y., a few miles from Rochester. The insect is widely distributed in Europe, where it is a pest of various trees and is especially injurious to fruit trees.

AN INTRODUCED WEEVIL

Three specimens of a Japanese weevil, Myloccerus castaneus Roelofs, were taken on wild grape, oak, and ash (?) a short distance from Montclair, N. J., on June 30, 1935. This weevil was first taken in the United States in this locality in August 1933. Although this species is not recorded as a pest in Asia, the genus contains many species that are crop pests, and one species is a very serious pest of cotton in India.

JAPANESE BEETLE

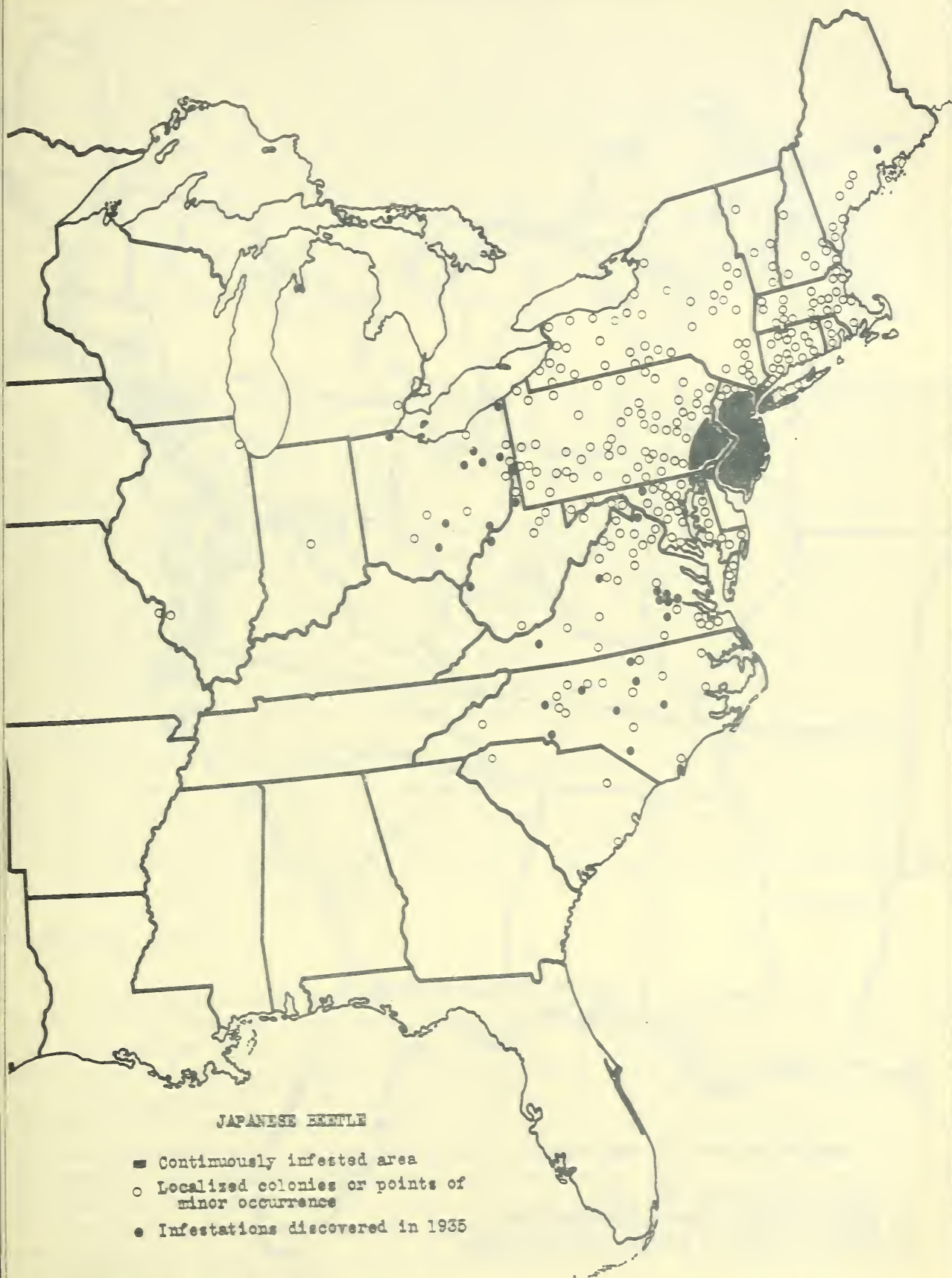
The area of continuous infestation of the Japanese beetle is now estimated at 11, 400 square miles, which is an increase of about 1,700 square miles. During the year the area was advanced northward into the highlands of New Jersey, a notable advance in view of the retardation noted in that section in the past 2 years. The principal local infestations instrumental in enlarging the area of continuous infestation were those developed in the vicinity of New York City and Brooklyn; at Reading and Lancaster, in Pennsylvania; between Havre de Grace and Aberdeen, Md.; and at Dover, Del. Trapping disclosed light infestations in the following 34 places where the beetle had never been taken before: Bangor, Maine; Emmitsburg, Md.; Akron, Chillicothe, Conneaut, Hills and Dale Village (suburb of Canton), Lancaster, Marietta, Salem, Toledo, and Wooster, Ohio; Charlotte, Goldsboro, High Point, Lumberton, Oxford, Sanford, Statesville, Wake Forest, N. C.; Bon Air, East Highland Park (Henrico County), Lovettsville, Petersburg, Petersburg Pike (Dinwiddie County), Pulaski, Sandston, Waynesboro, Westham, Westhampton, and Westover Hills (Charles City County), Va.; Chester, Huntingdon, Moundsville, and Parkersburg, W. Va. Judging from the extent of obvious injury, the infestation was decidedly heavier than in 1934 in practically all sections of the range where conditions were favorable, as in western New Jersey, southeastern Pennsylvania, and northern Delaware. However, in much of eastern New Jersey, including Monmouth County, the Pine Barrens, and the coastal section, the infestation remained about on a par with that of a year ago, and in many places appeared to be less marked. In Cape May County there was a marked increase.

SMALLER EUROPEAN ELM BARK BEETLE

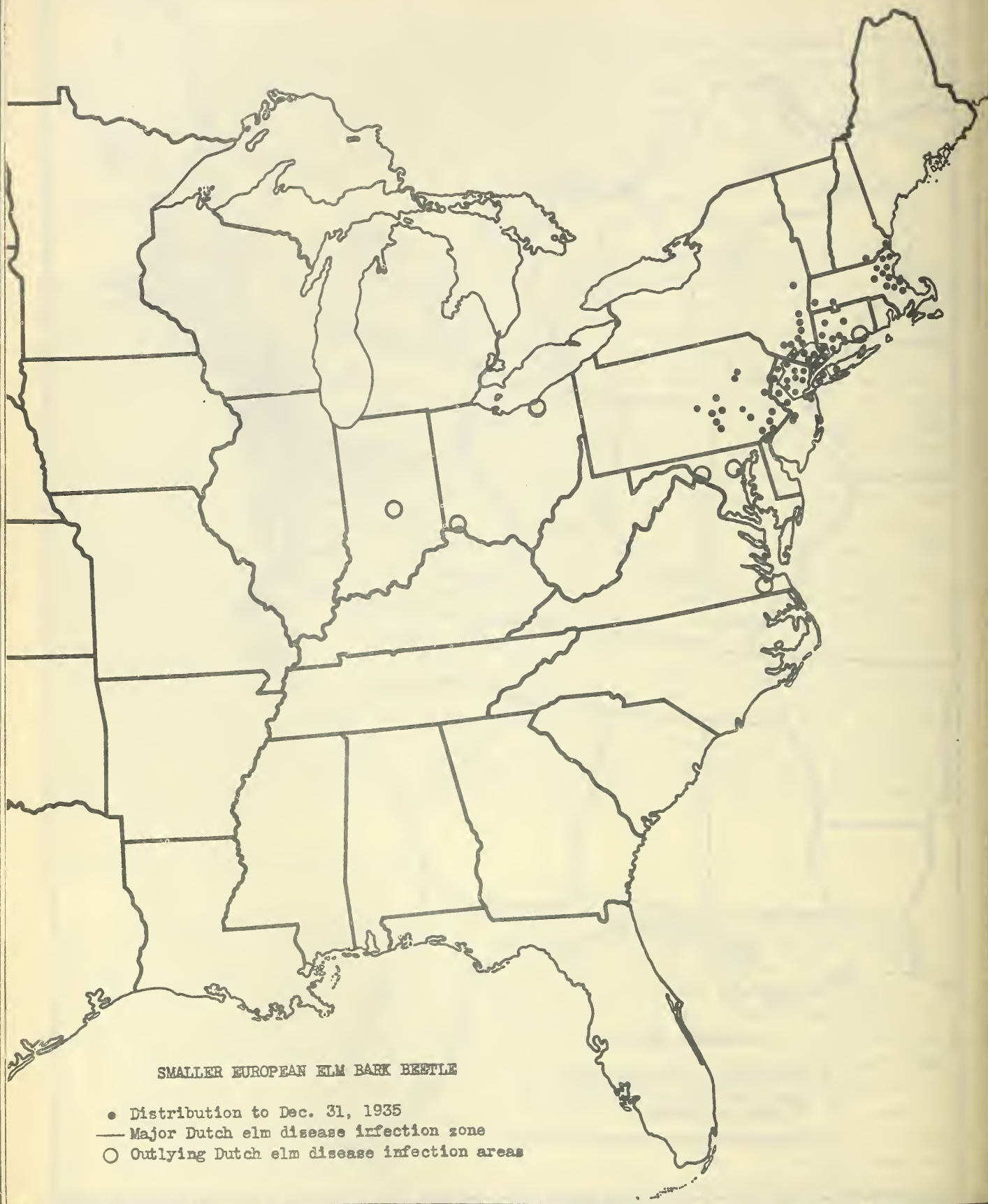
Information regarding the distribution of Scolytus multistriatus Marsh., a known vector of the Dutch elm disease fungus, was given in the Insect Pest Survey Bulletin, Summary for 1934, (vol. 14, no. 10, p. 345). At that time its occurrence was recorded in localities in two distinct areas, one area being in eastern Massachusetts and the other including parts of southwestern Connecticut, southeastern New York, the northern half of New Jersey, and southeastern Pennsylvania. In 1935 additional information regarding the distribution of the species was obtained by workers of the Bureau of Entomology and Plant Quarantine at Morristown, N. J., and records obtained by State workers in Massachusetts and Connecticut have been supplied by W. B. Becker and B. J. Kaston, respectively. Although many of the additional towns from which the insect has been recorded during 1935 are located within two areas from which infestations had been previously reported, a number of them lie outside the areas known to be infested in 1934. In some instances, however, proof is not available that the infestation is general out to

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these outlying towns; however, it is known that the infestation in eastern Massachusetts extends north over the New Hampshire line, as the beetle has been reported from Nashua and North Hampton. It is also known that the other infested area extends south into the extreme northern end of Delaware, where it has been taken at Claymont. Outlying reported infestations, which may or may not be isolated ones, having been reported from Egremont and Westfield, Mass.; Crescent, N. Y.; and Torrington and Glastonbury, Conn. It is of interest to note that while this insect is abundant in the major Dutch elm disease zone centered around New York City, it has not been found in outlying infected areas in Indianapolis, Ind., Cleveland and Cincinnati, Ohio, Baltimore and Brunswick, Md., Norfolk, Va., or Old Lyme, Conn. The larger European elm bark beetle (*S. scolytus* Fab.), considered the most important carrier of the disease in Europe, has not been found in the United States. (T. H. Jones, Bureau of Entomology and Plant Quarantine, U. S. D. A.)

GYPSY MOTHS

The hatch of egg clusters of the gypsy moth in the spring was quite variable, the low temperatures during the winter of 1934-35 being responsible for the killing of many clusters. However, the killing temperatures were not uniform in many sections of the infested areas, as considerable hatching of exposed egg clusters was noted in some localities. Egg clusters below the snow line showed a high percentage of hatch. Larvae were not abundant enough to cause complete defoliation until they had reached maturity. During the summer a total of 540,769 acres of woodland was partially or totally defoliated, an increase of almost 50,000 acres over 1934. In Maine and New Hampshire the areas of defoliation were increased quite extensively. In Massachusetts there was a slight decrease in the eastern and southeastern sections; however, in the western part of Worcester County and in sections of Franklin and Hampshire Counties east of the Connecticut River heavy defoliation occurred, the areas affected being much more extensive than in 1934, and much greater than ever before recorded in this section of the State. Some of the areas entirely defoliated in 1934 suffered the same degree of injury in 1935. In Rhode Island there was a slight decrease in defoliation, while in Vermont there was a slight increase, and in Connecticut a considerable increase was noted. (A. F. Burgess, Bureau of Entomology and Plant Quarantine, U. S. D. A.)

BROWN-TAIL MOTHS

During the fall and winter of 1934-35 brown-tail webs were cut over most of the infested area in New Hampshire and Massachusetts and some were cut in southern Maine by the State forces. In Maine slightly over 72,000 webs were cut and destroyed; in New Hampshire over 1,500,000 were destroyed; and in Massachusetts over 168,000. During the summer of 1935 there were no reports of extensive defoliation, although in one or two towns in northeastern Massachusetts slight defoliation was noted in limited areas. Throughout the insect's range the infestation is rather light, being somewhat heavier in scattered towns. There are some areas in southern Maine, southern New Hampshire, and southeastern Massachusetts where the winter webs are quite noticeable on fruit trees. (A. F. Burgess, Bureau of Entomology and Plant Quarantine, U. S. D. A.)

SATIN MOTH

In some sections of the infested area in New England, particularly in Massachusetts, records obtained during the summer of 1935 indicate that the satin moth is on the increase. Although no extensive areas of defoliation were noted, the insect was abundant enough to cause noticeable defoliation in 29 towns widely scattered over the entire infested area in Massachusetts. For the most part, this defoliation was confined to a few trees. In Rhode Island noticeable defoliation was found on a few trees in one town. In New Hampshire some defoliation was noted in three towns scattered widely over the infested area, but it was confined to a few trees in each place. There were no records of this insect's being abundant enough in any town in Maine to cause noticeable defoliation. (A. F. Burgess, Bureau of Entomology and Plant Quarantine, U. S. D. A.) Note.---A survey conducted in Oregon in July revealed the presence of the insect in Benton, Clackamas, Linn, Marion, Multnomah, Polk, Washington, and Yamhill Counties. No damage was being done, however, except near Gervais, Marion County, the site of the original infestation in Oregon. R. T. Webber, of the Bureau of Entomology and Plant Quarantine, reported that in Washington infestations in residential sections outnumber those in woodlands. The principal woodland infestations lie between Everett, Snohomish County, and Bellingham, Whatcom County, where willows seem to be the favored food plant. Other woodland infestations of an acre or more have developed to complete defoliations in Pierce and Cowlitz Counties. Mr. Webber says: "Five species of parasites of European origin, namely, Apanteles solitarius (Ratz.), Metecrus versicolor Wesm., Eupteromalus nidulans (Thom.), Rogas unicolor Wesm., and Compsilura concinnata Meig. were liberated (in western Washington) and all but R. unicolor were recovered. Only one species, A. solitarius, has established itself so well that its effectiveness is now apparent over the entire territory. Parasitization by this species in the localities of host abundance will reach 11.8 percent, increasing in its effectiveness in localities of host scarcity where it attained a maximum of 32.8 percent."

CANKERWORMS

Cankerworms occurred in outbreak numbers over much of the Northeastern States, with a severe infestation centering in southeastern New York and New Jersey and extending into Maine. Scattered infestations occurred in northwestern Ohio, Illinois, western North Carolina, southeastern Wisconsin, southern Iowa, Missouri, much of Kansas, and the Sacramento Valley of California. Severe defoliation of forest, shade, and fruit trees was reported. The fall species, Alsophila pomataria Harr., was most frequently named as causing the injury, although the spring species was commonly represented. A report of A. pomataria from Salt Lake County, Utah, gave a new State record for the species.

FOREST TENT CATERPILLAR

A small isolated infestation of the forest tent caterpillar was reported from the coast counties of Mississippi and across the State line in Washington and Saint Tammany Parishes, La., the last of April and the first of May. A more extensive infestation developed later in the season in southeastern New York, and in Connecticut, Massachusetts, Vermont, New Hampshire,

and the southern half of Maine. Considerable defoliation of various trees was reported. The insect was reported in considerable abundance on raspberry in the northern point of the Southern Peninsula of Michigan. It was reported from northeastern Minnesota as defoliating thousands of acres of birch, poplar, and willow.

BAGWORM

A severe outbreak of the bagworm occurred over most of the country east of the Mississippi River, especially from a line drawn from central Ohio, Indiana, and Illinois southward to include Kentucky, Tennessee, Alabama, and Mississippi. Isolated infestations were reported from southeastern Nebraska and central Texas.

A NATIVE WEEVIL

The following note, dated October 1, on Agasphaerops nigra Horn, was received from C. F. Doucette: "Serious injury to bulbs and underground stems of Lilium longiflorum by larvae has been observed in the southwestern coastal area of Oregon. In one planting about 15 percent of the bulbs were attacked, and in spots 100 percent were attacked. There is evidence that the infestation originated from native lily bulbs growing in brushy areas near the plantings. It is apparent that the weevil is a real menace to the production of this species of lily bulb in this district." This is the first record of damage by this weevil to be received by the Insect Pest Survey. Leng, in his Catalogue of the Coleoptera of America North of Mexico, records the weevil as occurring in California.

SCREW WORM

Infestations of animals by screw worms were observed in the southern part of Georgia and in northern and central Florida during January and February, 1935. The heavy infestation in southeastern Louisiana, southern Mississippi, and southwestern Alabama was completely wiped out during the winter of 1934-35. In April and early in May a few scattered cases began to appear in central and western Georgia and in southeastern Alabama. From the South, where the pest successfully overwintered, it spread northward as far as the southern boundary of North Carolina, into southeastern Tennessee, and westward through the southern half of Alabama to the eastern Mississippi line, with only a few cases in the northern Alabama counties. For some reason, probably owing to the intensive campaign against the pest conducted by the Bureau and to certain ecological factors not yet determined, screw worm flies did not become reestablished in Mississippi and southeastern Louisiana in 1935. As the season advanced, the incidence of infestation increased until the peak was reached late in the summer or fall. Of the Southeastern States, Florida probably suffered the greatest damage from the pest, because of the longer season of fly activity and more favorable climatic conditions, which permitted the building up of a larger fly population. Approximately 90 percent of the infestations occurred in cattle and hogs with the number of infestations in each of these two classes of animals about equal. As a result of the educational and control campaign, the screw-worm incidence in 1935 in the Southeast was not as high as in 1934. The highest percentages of infestation recorded for any weekly period during the 1935 season for the

various States are as follows: Georgia, 4.4; Florida, 4.2; Alabama, 0.5; Louisiana, 1.0; South Carolina, 9.8; and southeastern Texas, 1.6. The death loss was even more markedly reduced. In the Southwest in 1935 observations indicated that the primary screw worm fly was able to overwinter, at least as far north as Uvalde, Tex., as infestations occurred in January and February in that locality. The first cases in the vicinity of Menard, Tex., were observed during the first half of April. Owing to the mild winter and subsequent unusually favorable climatic conditions for fly propagation, the pest increased in enormous numbers, causing the most serious loss among livestock experienced in recent years. Fairly authentic data obtained from ranchmen in this State show that in certain classes of livestock from 16 to 25 percent of the animals were infested, with a mortality rate of about 6 percent among the infested stock. In New Mexico, Arizona, California, Oklahoma, Kansas, and Arkansas the screw worm was unusually abundant and the losses were comparatively heavy. Outbreaks occurred in many localities in Illinois, Iowa, Nebraska, Missouri, Indiana, and Kentucky. In these States many thousands of animals were infested and a good many were killed. These outbreaks were apparently started by shipments of infested animals into these States, mainly from the Southwest. After being introduced into these new areas, the fly was able to maintain itself and, by natural dissemination and the intrastate shipment of animals, the infestation spread rapidly from the points of introduction. (F. C. Bishopp, Bureau of Entomology and Plant Quarantine, U. S. D. A.)

HOUSE CRICKET

During 1935 the house cricket was reported as being extremely numerous in city dumps and houses at Lyons, Utica, and Auburn, N. Y., Little Falls, N. J., Niles, Mich., in the northeastern section of Washington, D. C., and at Clarendon and Lyon Park, Va. In all these localities the crickets bred to large numbers in the dumps and later, during the August-October period, flew or crawled in swarms into nearby houses, making a nuisance of themselves by crawling everywhere, by their chirping, and by destructive attacks on shoes, clothing, rugs, drapes, umbrella covers, and other fabrics. (E. A. Back, Bureau of Entomology and Plant Quarantine, U. S. D. A.)

A SCALE INSECT

A scale insect, Lepidosaphes halli Green, was discovered on Prunus spp. and Amygdalus spp. in the grounds of the United States Plant Introduction Gardens at Chico, Butte County, Calif., on February 5, 1934. An eradication campaign was immediately inaugurated and a report in June 1935 indicated that the insect had been completely wiped out. Foreign literature on the species is limited to the paper published in 1923 by E. E. Green, recording the original description from specimens collected near Giza, Egypt.

Correction.--The last two lines of the note on cabbage insects by C. O. Bare in Insect Pest Survey Bulletin, vol. 15, no. 8, p. 379, (October 1935) should be corrected to read: Striped cabbage worm is almost if not the principal pest of cabbage in western North Carolina. It has never been seen on cabbage at Charleston, S. C.

FOREIGN INSECTS

Specimens of the following foreign insects have been identified from collections made in the United States.

Among specimens of Lepidoptera received for identification was one small moth, Laspeyresia coniferana Ratz. According to the associated data, this specimen was reared from larvae found in Pinus resinosa collected at Cross River, N. Y., on June 27, 1934. The species apparently has not previously been reported from the United States. (Det. C. Heinrich)

Six specimens of a weevil collected on June 1, 1935, at Bellingham, Wash., have been identified as Ceutorhynchus assimilis Payk., a European species not previously reported from North America. Another specimen of the species is at hand from Vancouver, British Columbia, having been taken on May 28, 1931. (L. L. Buchanan)

Among leafhoppers received for identification were included specimens collected on mignonette at Bar Harbor, Maine, on August 25, 1934. These specimens have been placed as the European species Eupteryx auratus L. This seems to be the first record of the occurrence of this insect in North America. (P. W. Oman)

On June 27 at Nicolaus, Calif., and July 5 at Puyallup, Wash., P. W. Oman collected specimens of a leafhopper on cottonwood which he has identified as Idiocerus albicans Kbm., apparently the first records for this species from North America. There has also been received for identification a single female of an Idiocerus, collected at Pullman, Wash., on October 13, 1929, which Mr. Oman tentatively placed as I. fulgidus Fab. Both are European forms living on Populus. Mr. Oman suggests that, if the latter identification is correct, all the above-mentioned specimens probably represent but a single species, as material in the National Collection under the name albicans does not appear to be specifically distinct from that considered to be fulgidus.

Mr. Oman has had occasion to refer to and identify certain leafhoppers he collected in New England in August 1934. Of these, two are well-known European species but apparently represent new records for North America. These are Athysanus argentatus Fab. and Macropsis tiliae Burm. The first is apparently a grass feeder, as are closely related species of the genus, while the second, as the name suggests, lives on Tilia sp. The latter species is commonly referred to by European workers as Pediopsis tiliae Burm. M. tiliae was collected at New Haven, Conn., and A. argentatus in the White Mountains of New Hampshire. (P. W. Oman)

First occurrence in America of the ichneumonid Bathyplectes tristis (Grav.), a European parasite of the clover leaf weevil (Hypera punctata Fab.), was recorded when two specimens, reared October 7, 1935, at Arlington Farm, Va., were identified as this species. (R. A. Cushman)

On several occasions in the past 2 years, F. D. DeGant, of Cleveland, Ohio, has sent in specimens of an ichneumonid which he had reared, along with its wasp host, from rose stems in his garden. The parasite has been identified by R. A. Cushman as Perithous divinator (Rossi), a European species not heretofore recorded from North America. Grace Sandhouse has identified the wasp, with some question, as Femphredon lethifer (Shuckard), a species recorded in European literature as one of the hosts of P. divinator. It has not previously been recorded from North America, although the collection of the National Museum contains specimens from Rosedale, Mass.; Philadelphia, Pittsburgh, and North East, Pa.; Baltimore, Md.; Washington, D. C.; Cleveland, and Wooster, Ohio; Detroit, Mich.; Chicago, Ill.; and Webster Grove, Mo. All but the Philadelphia specimen, which was captured in 1909, have been collected since 1922. Many of them were reared from rose or blackberry stems.

Specimens reared from elm logs at Morristown, N. J., and in Westchester County, N. Y., were identified as Entedon leucogramma (Ratz.), a European species parasitic upon Eccoptogaster spp., and not previously recorded from America. (Det. A. B. Gahan)

The first record of the occurrence of the sawfly Pristiphora geniculata Htg. in the United States has been established by the identification of material in the collection of the National Museum by H. H. Ross, of the Illinois State Laboratory of Natural History. The specimens are from North Adams, Mass., Delhi and Haines Falls, N. Y., and Mount Desert Island, Maine, and with one exception were reared from mountain ash, the first collection date being in 1926.

A scale insect, Lepidosaphes chinensis Chamb., was taken on orchids (Cymbidium sp.) in a glass house at Lincoln Park, Los Angeles County, Calif., in July 1934. (Det. H. Morrison)

The first record in the United States of the sugarcane mite (Tarsonemus bancrofti Michael) comes from a quarantine greenhouse at Arlington Farm, Va. Since the discovery of the infestation, all the sugarcane in the vicinity of the infested house has been destroyed and the house has been fumigated. Note.--In October the mite was discovered on sorghum growing on experimental plats at Houma, La. Immediate steps were taken to eradicate the pest, which is seriously injurious to sugarcane in many tropical countries and islands.

Mr. Ewing reports the third record for the United States of Eutetranychus latus (Can. & Fanz.) in the identification of specimens collected on boxwood at Arlington Farm, Va., on March 6, 1934.

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